Code No: R1931243 **R19** **SET - 1**

III B. Tech I Semester Supplementary Examinations, June/July-2022

MICROPROCESSORS AND MICROCONTROLLERS

(Automobile Engineering)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1. a) Write short notes on (i) Segmentation (ii) Flag register in 8086. [8M]
   b) Draw and explain read cycle timing diagram of 8086 in minimum mode configuration. [7M]

(OR)

2. a) Explain the addressing modes of 8086 with examples. [8M]
   b) What is the function of data copy/transfer instructions & explain each with an example. [7M]

UNIT-II

3. a) Define interrupt? Explain the interrupt response sequence of 8086 with a neat sketch. [8M]
   b) Illustrate the assembly language program development tools. [7M]

(OR)

4. a) Write an Assembly language program to find out the number of even and odd numbers from a given series of 16-bit numbers. [8M]
   b) Illustrate stack operation using PUSH and POP instructions with example. [7M]

UNIT-III

5. a) Draw the architecture of 8255 and explain each block in detail. [8M]
   b) Explain the asynchronous mode data transfer in 8251A. [7M]

(OR)

6. a) Illustrate the Stepper motor interfacing with 8086 and write a program to rotate clockwise and anti-clockwise continuously. [8M]
   b) What is the use of DMA controller? List out the features of DMA controller 8257. [7M]

UNIT-IV

7. a) Explain various functional blocks of 8051 with a neat diagram [8M]
   b) Evaluate the memory organization of 8051 microcontroller. [7M]

(OR)

8. a) Describe the functions of Port 0, Port 1, Port 2 and Port 3 in 8051. [8M]
   b) Explain the following registers in 8051: [7M]
   (i) TMOD (ii) Accumulator (iii) PSW

UNIT-V

9. a) Draw and explain the ARM architecture in detail. [8M]
   b) What are TIMER0 and TIMER1 in PIC Microcontroller? Explain each timer in detail. [7M]

(OR)

10. a) Mention the features of PIC16Cx/7X and give the classification of instruction set of the PIC16Cx/7X microcontroller. [8M]
    b) Explain about the ARM / Thumb programming model with neat sketch. [7M]

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